Solgroup

ANALYSIS OF PILE GROUPS

Example 1

ANALYSIS REPORT

Date	**2026-11-15**
Units	**kN, m, C**
Piles	**9**
Program	**Solgroup 1.0.9**

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1. Model Views

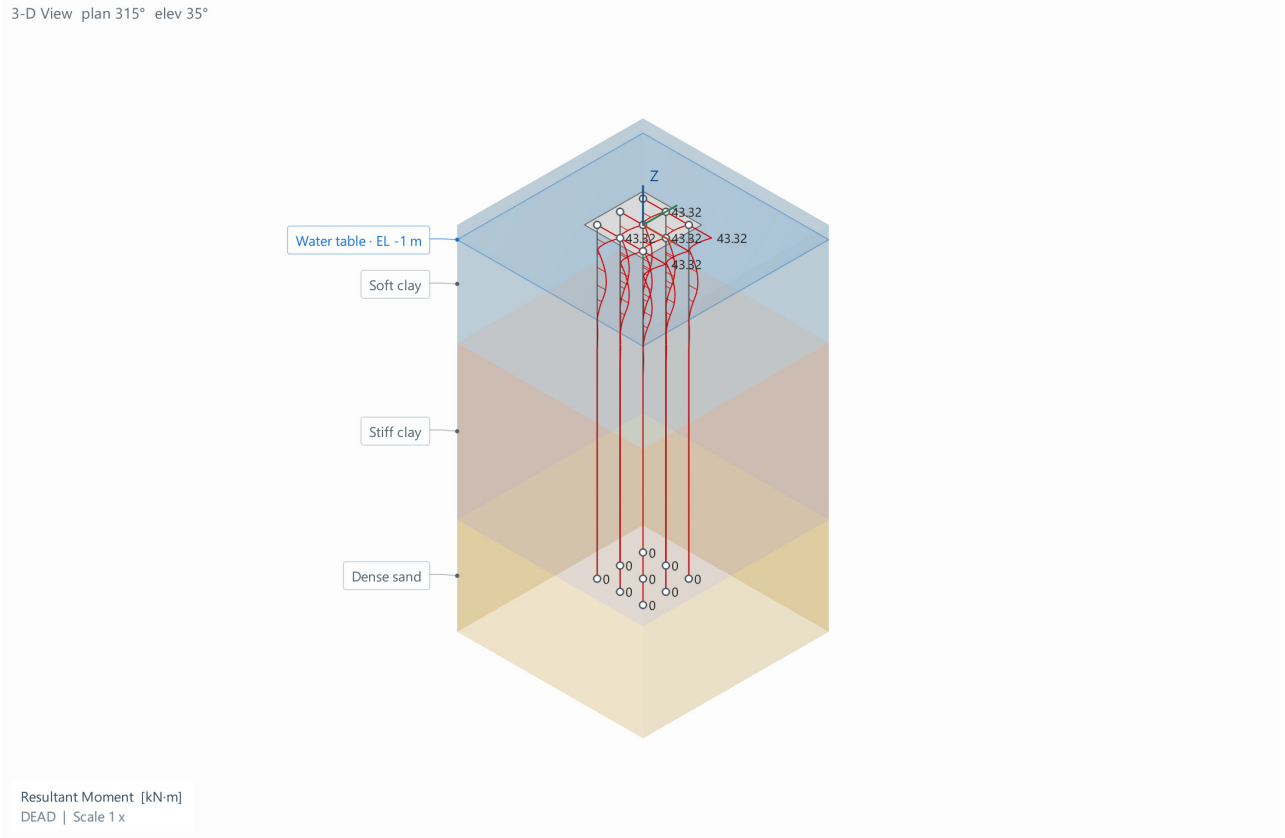


Figure 1. Model view

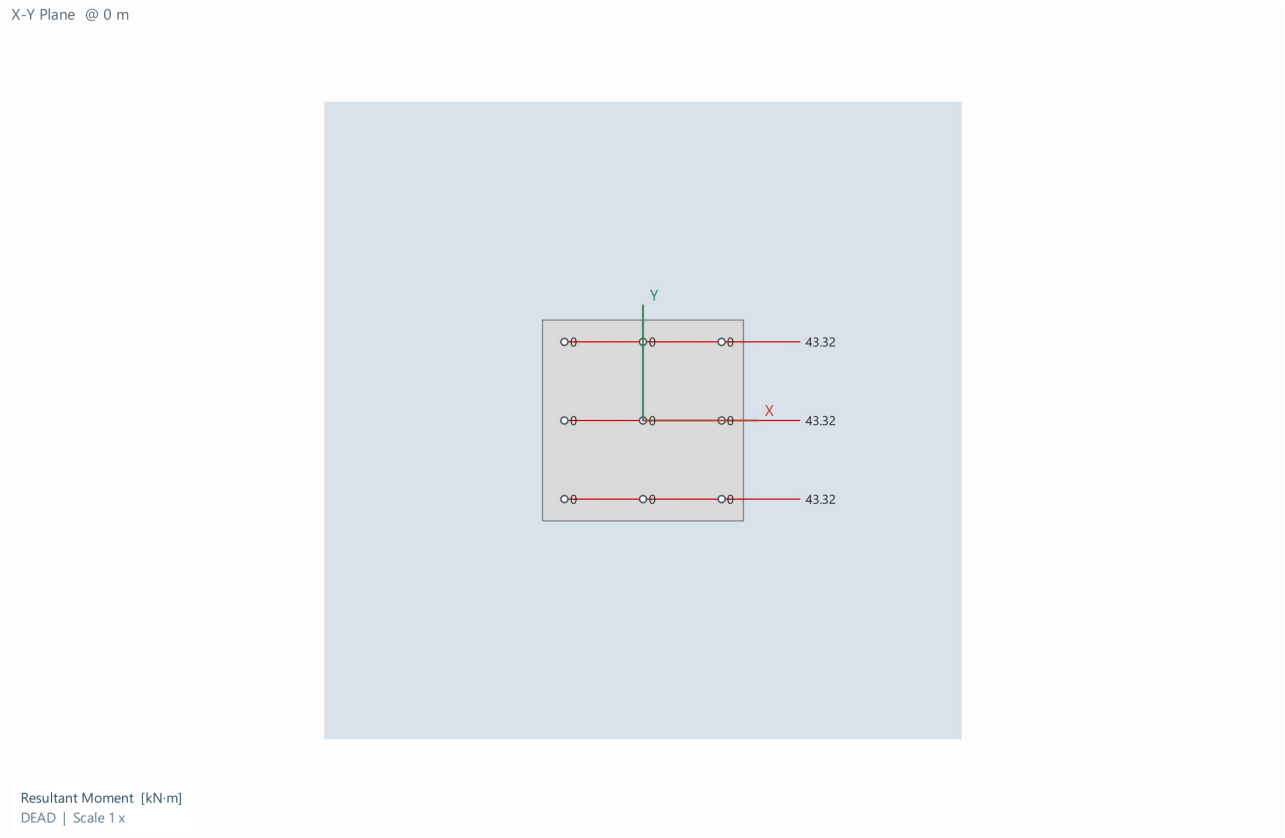


Figure 2. Plan view (X-Y)

2. Analysis Options

Option	Value
Pile cap behaviour	Rigid
Extend L-D / T-R curves beyond their last point	No
Use layering correction (Georgiadis)	Yes
Skip correction when the soil above is of the same type	No
Adjust depth for batter piles	Yes
Group effect factors (lateral)	None
Reduction factors for axial loads	No
Lateral reduction along depth	No
User-defined p-y / L-D / T-R curves	No / No / No
Passive resistance of the embedded cap	No

3. Materials & Sections

3.1 Materials

Name	Type	Weight/Volume (kN/m³)	E (kN/m²)	nu	fc (kN/m²)	fy (kN/m²)	fu (kN/m²)	Es (kN/m²)
fc' 30 MPa	Concrete	24	2.5743e+07	0.2	30000			

3.2 Pile Sections

Name	Shape	Behaviour	Material	A (m²)	I22 (m⁴)	I33 (m⁴)	J (m⁴)	Perimeter (m)	p-y Width (m)
Pile 1	Elastic section (user-defined EI)	Elastic (no yield)	fc' 30 MPa	0.282743	0.00636173	0.00636173	0.0127235	1.88496	0.6

3.3 Cap Sections

Name	Thickness (m)	Material	Rigid	Mesh Size (m)
CAP-1000	1	fc' 30 MPa	Yes	0.5

4. Piles & Joints

4.1 Piles

ID	Label	X (m)	Y (m)	Z Head (m)	Z Tip (m)	Length (m)	Batter from Vert (°)	Batter Ratio 1:m	Azimuth (°)
P1	P1	-1.8	-1.8	0	-24	24	0		0
P2	P2	0	-1.8	0	-24	24	0		0
P3	P3	1.8	-1.8	0	-24	24	0		0
P4	P4	-1.8	0	0	-24	24	0		0
P5	P5	0	0	0	-24	24	0		0
P6	P6	1.8	0	0	-24	24	0		0
P7	P7	-1.8	1.8	0	-24	24	0		0
P8	P8	0	1.8	0	-24	24	0		0
P9	P9	1.8	1.8	0	-24	24	0		0

4.2 Assignments

Pile	Section	Pile Type	Head Condition	p-y Set	L-D Curve	T-R Curve	Axial Reduction	Lateral Reduction Set	Segments	Ground Elev Override (m)	Local Axis Rotation (°)
P1	Pile 1	Driven pile	Project (Fixed)				1		100		0
P2	Pile 1	Driven pile	Project (Fixed)				1		100		0
P3	Pile 1	Driven pile	Project (Fixed)				1		100		0
P4	Pile 1	Driven pile	Project (Fixed)				1		100		0
P5	Pile 1	Driven pile	Project (Fixed)				1		100		0
P6	Pile 1	Driven pile	Project (Fixed)				1		100		0

Pile	Section	Pile Type	Head Condition	p-y Set	L-D Curve	T-R Curve	Axial Reduction	Lateral Reduction Set	Segments	Ground Elev Override (m)	Local Axis Rotation (°)
P7	Pile 1	Driven pile	Project (Fixed)				1		100		0
P8	Pile 1	Driven pile	Project (Fixed)				1		100		0
P9	Pile 1	Driven pile	Project (Fixed)				1		100		0

5. Soil

5.1 Soil Layers

Name	p-y Model	Gamma Unsat (kN/m³)	Gamma Sat (kN/m³)	Side Friction (kN/m²)	Tip Resistance (kN/m²)	Params
Soft clay	Soft Clay (Matlock)	15	16	0	0	cu=25 kN/m²; eps50=0.02
Stiff clay	Stiff Clay without Free Water	17.5	19	0	0	cu=120 kN/m²; eps50=0.005
Medium sand	Sand (Reese)	17	19.5	0	0	k=24400 kN/m³; phi=33 °
Dense sand	API Sand (O'Neill)	18	20.5	0	0	k=61000 kN/m³; phi=38 °

5.2 Soil Profiles

Profile	Top Elev (m)	Bottom Elev (m)	Layer	k Override (kN/m³)	Ground Elev (m)	Water Elev (m)	Scour (m)
Profile 1	0	-8	Soft clay		0	-1	0
Profile 1	-8	-20	Stiff clay		0	-1	0
Profile 1	-20	-40	Dense sand		0	-1	0

6. Loading

6.1 Load Patterns

Name	Type	Self Weight Multiplier
DEAD	DEAD	1
LIVE	LIVE	0

6.2 Joint Loads

Target	Pattern	Fx (kN)	Fy (kN)	Fz (kN)	Mx (kN·m)	My (kN·m)	Mz (kN·m)
CAP	DEAD	300	0	-5400	0	450	0

6.3 Load Cases

Name	Type	Initial Condition	Patterns	p-Mult Set	Steps	Soil Behaviour	Cycles	Tol Equilibrium	Tol Pile Deflection (m)	Iter Group	Iter Pile
DEAD	Nonlinear Static		DEAD×1		10	Static	1	1e-05	1e-05	100	100
LIVE	Nonlinear Static		LIVE×1		10	Static	1	1e-05	1e-05	100	100

Name	Processors	Printing	Output Variables	Overrides
DEAD	4	Cap and pile heads	11	-
LIVE	4	Cap and pile heads	11	-

7. Check Model

Level	Code	Message
Warning	LOAD-007	Load case 'LIVE' carries no load: its load patterns are empty.

8. Results — Cap Response & Pile Heads

8.1 Cap Response

Load Case	Ux (m)	Uy (m)	Uz (m)	Rx (°)	Ry (°)	Rz (°)	Converged	Iterations	Message
DEAD	0.000933156	0	-0.0012934	0	0.00517408	0	Yes	7	
LIVE	0	0	0	0	0	0	Yes	2	

8.2 Pile Head Results

Load Case	Pile	Converged	Ux (m)	Uy (m)	Uz (m)	Rx (°)	Ry (°)	Rz (°)	Axial (kN)	Shear-2 (kN)	Shear-3 (kN)
DEAD	P1	Yes	0.000933156	0	-0.00113085	0	0.00517408	0	577.066	33.3501	0
DEAD	P2	Yes	0.000933156	0	-0.0012934	0	0.00517408	0	659.619	33.3327	0
DEAD	P3	Yes	0.000933156	0	-0.00145595	0	0.00517408	0	732.595	33.3172	0
DEAD	P4	Yes	0.000933156	0	-0.00113085	0	0.00517408	0	577.066	33.3501	0
DEAD	P5	Yes	0.000933156	0	-0.0012934	0	0.00517408	0	659.619	33.3327	0
DEAD	P6	Yes	0.000933156	0	-0.00145595	0	0.00517408	0	732.595	33.3172	0
DEAD	P7	Yes	0.000933156	0	-0.00113085	0	0.00517408	0	577.066	33.3501	0
DEAD	P8	Yes	0.000933156	0	-0.0012934	0	0.00517408	0	659.619	33.3327	0
DEAD	P9	Yes	0.000933156	0	-0.00145595	0	0.00517408	0	732.595	33.3172	0
LIVE	P1	Yes	0	0	0	0	0	0	0	0	0
LIVE	P2	Yes	0	0	0	0	0	0	0	0	0
LIVE	P3	Yes	0	0	0	0	0	0	0	0	0
LIVE	P4	Yes	0	0	0	0	0	0	0	0	0
LIVE	P5	Yes	0	0	0	0	0	0	0	0	0
LIVE	P6	Yes	0	0	0	0	0	0	0	0	0
LIVE	P7	Yes	0	0	0	0	0	0	0	0	0
LIVE	P8	Yes	0	0	0	0	0	0	0	0	0
LIVE	P9	Yes	0	0	0	0	0	0	0	0	0

Load Case	Pile	Moment-2 (kN·m)	Moment-3 (kN·m)	Torsion (kN·m)
DEAD	P1	0	43.315	0
DEAD	P2	0	43.3173	0
DEAD	P3	0	43.3194	0
DEAD	P4	0	43.315	0
DEAD	P5	0	43.3173	0
DEAD	P6	0	43.3194	0
DEAD	P7	0	43.315	0
DEAD	P8	0	43.3173	0
DEAD	P9	0	43.3194	0
LIVE	P1	0	0	0
LIVE	P2	0	0	0
LIVE	P3	0	0	0
LIVE	P4	0	0	0
LIVE	P5	0	0	0
LIVE	P6	0	0	0
LIVE	P7	0	0	0
LIVE	P8	0	0	0
LIVE	P9	0	0	0

9. Results — Charts

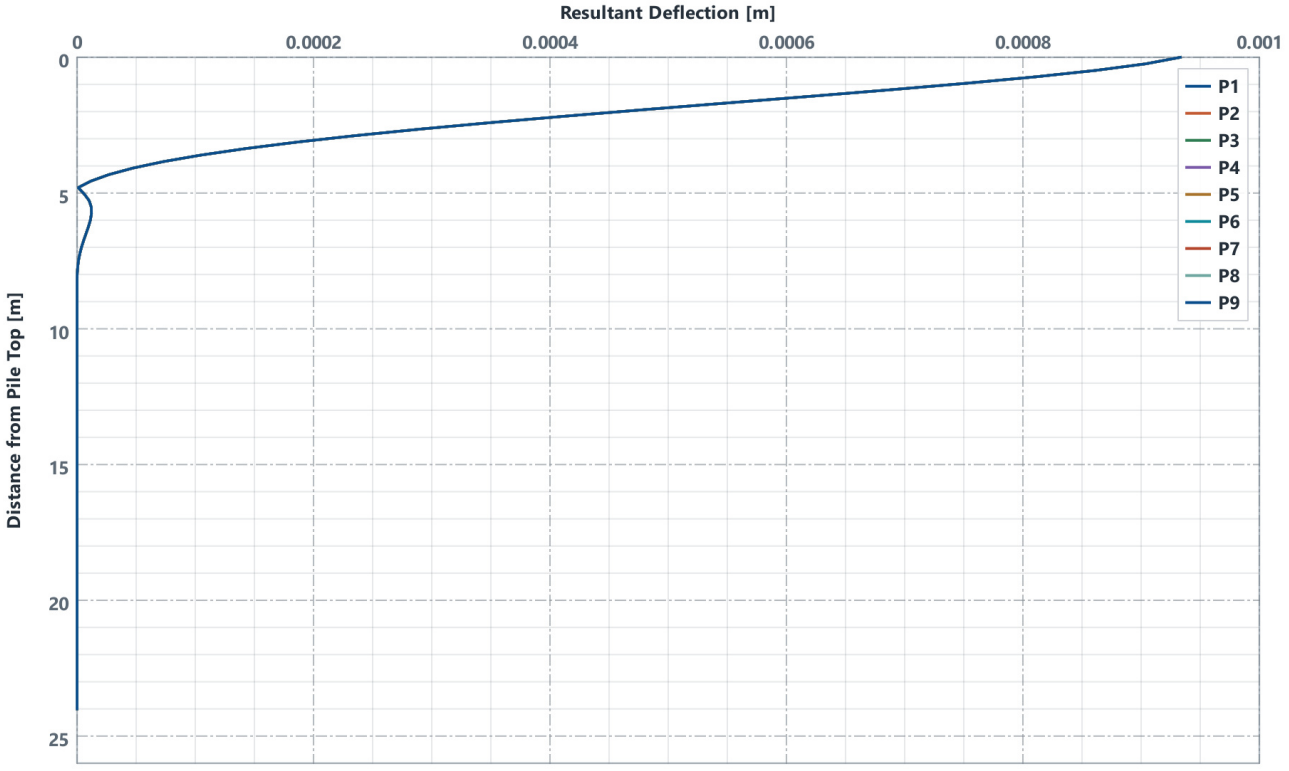


Figure 3. Resultant Deflection vs Distance — DEAD

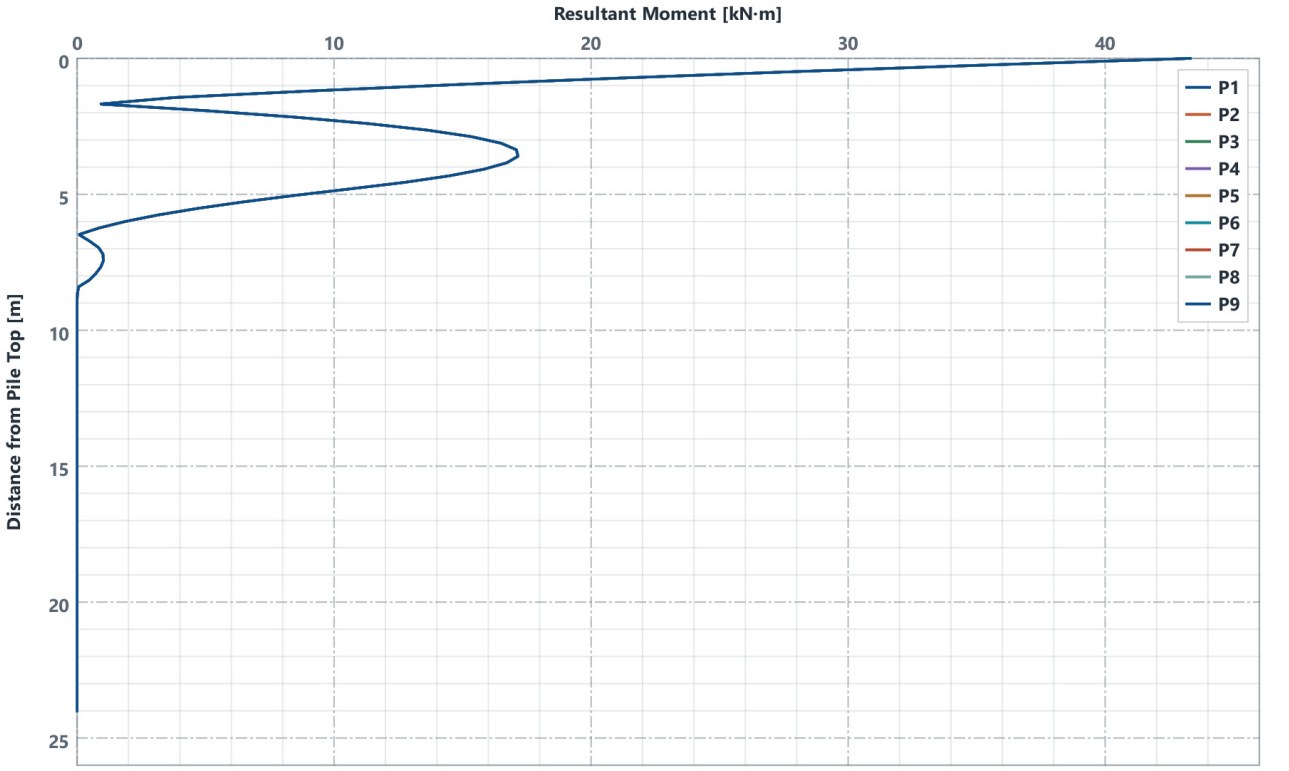


Figure 4. Resultant Moment vs Distance — DEAD

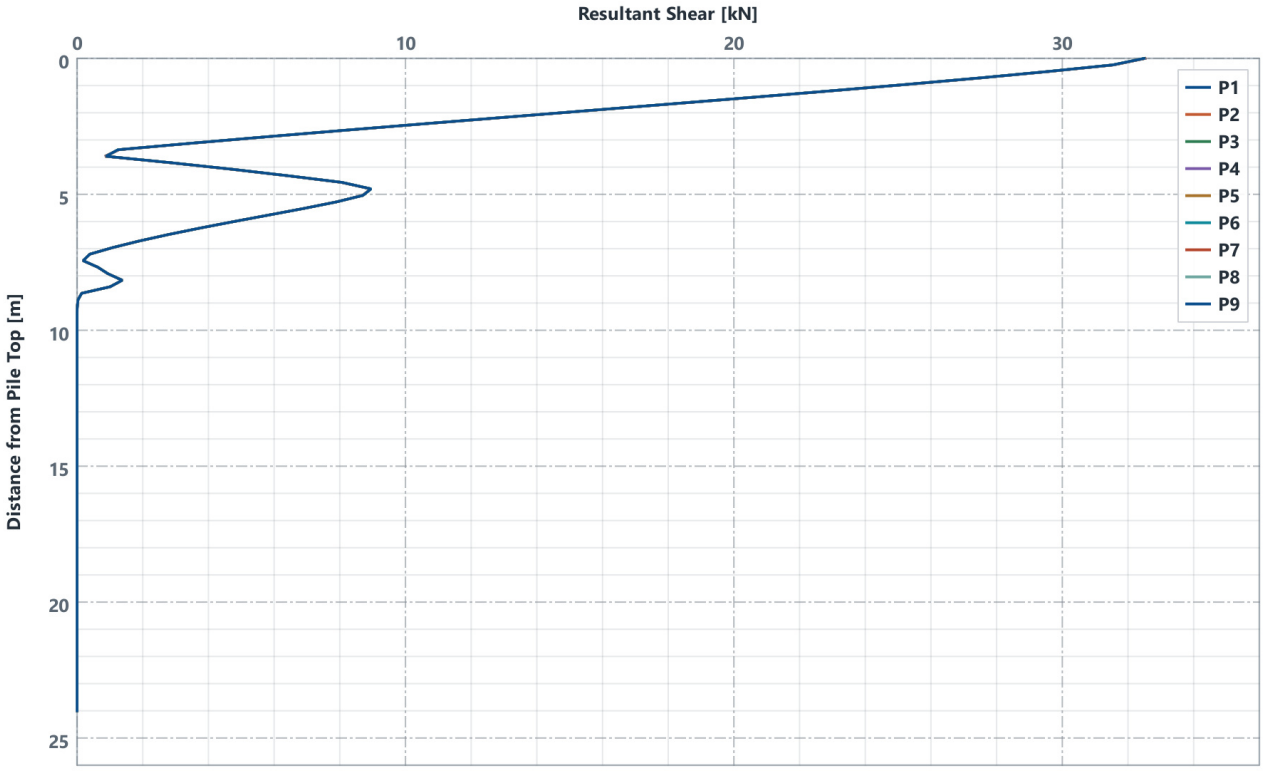


Figure 5. Resultant Shear vs Distance — DEAD

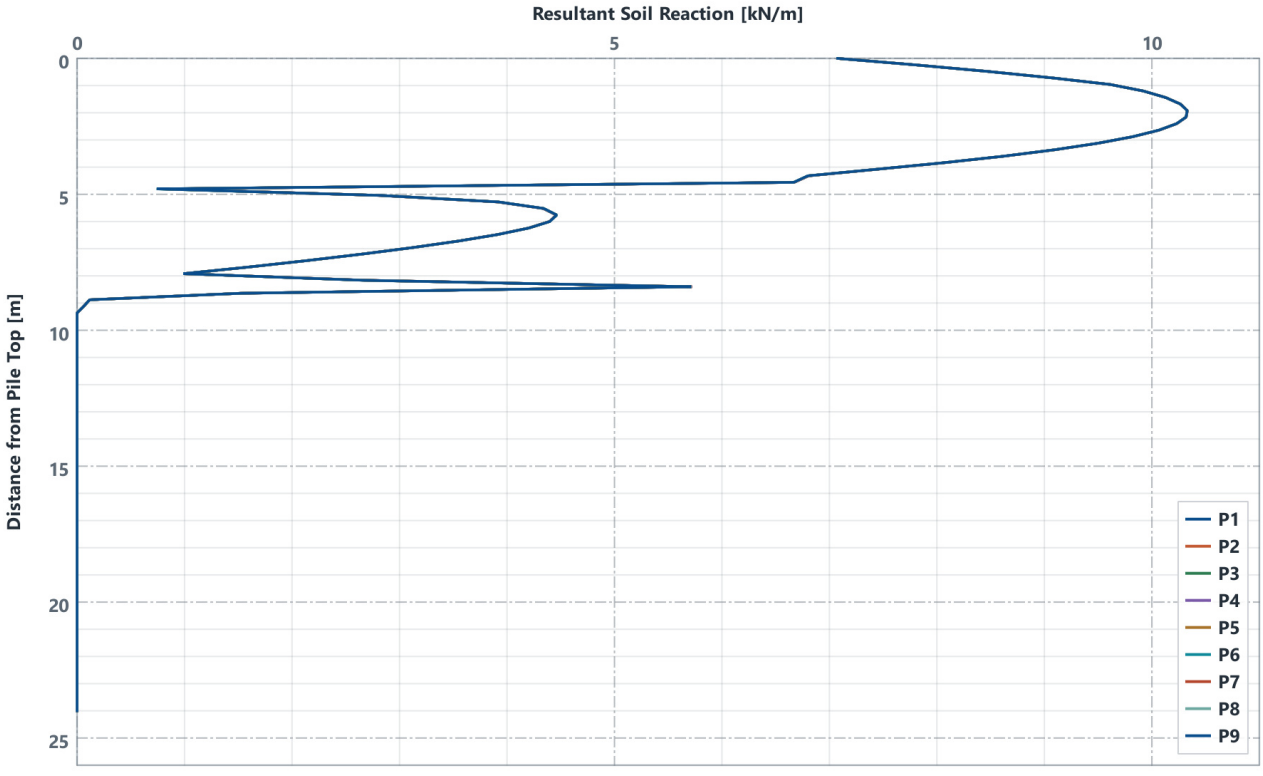


Figure 6. Resultant Soil Reaction vs Distance — DEAD

10. Results — Run Notes

10.1 Run Notes

Load case	Note
DEAD	Self weight of the cap: 507.8 kN (multiplier 1); the weight of the piles is not included.

11. Appendix — Input Echo

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               Solgroup 1.0.9

               Pile group analysis in 3D
               with nonlinear soil-pile interaction

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Model                 : Example 1
Report                : Input Echo
Units                 : kN, m, C
Report date           : 2026-11-15 16:46:33


==== MODEL INPUT ====


Example 1

MODEL         = THREE-DIMENSIONAL
PILE CAP      = RIGID

BATTER PILES: SOIL DEPTH MEASURED VERTICALLY
AXIAL AND TORSIONAL CURVES GENERATED FROM THE SOIL PROFILE
USE LAYERING CORRECTION (METHOD OF GEORGIADIS)


--- PILE CAP ---

EXTENT IN X                      (m) = 4.6000
EXTENT IN Y                      (m) = 4.6000
THICKNESS                        (m) = 1.0000
ELEVATION OF CAP BOTTOM          (m) = 0.0000
LOAD REFERENCE POINT             (m) = 0.0000, 0.0000, 0.0000
RESTRAINED DEGREES OF FREEDOM         = none

PASSIVE RESISTANCE OF THE PILE CAP IS NOT CONSIDERED

[ CAP SECTIONS ]

      Name  Thickness    Material  Rigid  Mesh Size
                    m                            m
  --------  ---------  ----------  -----  ---------
  CAP-1000     1.0000  fc' 30 MPa    Yes    0.50000


--- LOADING AND SOLUTION CONTROL ---


[ LOAD PATTERNS ]

  Name  Type  Self Weight Multiplier
  ----  ----  ----------------------
  DEAD  DEAD                 1.0000
  LIVE  LIVE                 0.0000

[ JOINT LOADS ]

  Target  Pattern      Fx      Fy       Fz      Mx       My       Mz
                       kN      kN       kN    kN·m     kN·m     kN·m
  ------  -------  ------  ------  -------  ------  ------  ------
     CAP     DEAD  300.00  0.0000  -5400.0  0.0000  450.00  0.0000

[ LOAD CASES ]

LOAD CASES DEFINED :     2

CASE          : DEAD
CASE TYPE     : Nonlinear Static
PATTERNS      : DEAD x 1

[ EQUIVALENT CONCENTRATED LOAD AT REFERENCE POINT ]

  FORCE X  FORCE Y  FORCE Z  MOMENT X  MOMENT Y  MOMENT Z
       kN       kN       kN      kN·m      kN·m      kN·m
  -------  -------  -------  --------  --------  --------
   300.00   0.0000  -5907.8    0.0000    450.00    0.0000

SOIL LOADING : STATIC

[ SOLUTION CONTROL ]

    CONVERGENCE TOLERANCE, PILE CAP MOVEMENT   = 1.00000E-05
    CONVERGENCE TOLERANCE, PILE DEFLECTION     = 1.00000E-05 m
    ITERATION LIMIT, FOUNDATION                =      100
    ITERATION LIMIT, SINGLE PILE               =      100
    INITIAL LOAD STEP FACTOR                   =     1.0000
    MINIMUM LOAD STEP FACTOR                   =     1.0000
    OUTPUT: PILE CAP AND PILE HEADS

CASE          : LIVE
CASE TYPE     : Nonlinear Static
PATTERNS      : LIVE x 1

[ EQUIVALENT CONCENTRATED LOAD AT REFERENCE POINT ]

  FORCE X  FORCE Y  FORCE Z  MOMENT X  MOMENT Y  MOMENT Z
       kN       kN       kN      kN·m      kN·m      kN·m
  -------  -------  -------  --------  --------  --------
   0.0000   0.0000   0.0000    0.0000    0.0000    0.0000

SOIL LOADING : STATIC

[ SOLUTION CONTROL ]

    CONVERGENCE TOLERANCE, PILE CAP MOVEMENT   = 1.00000E-05
    CONVERGENCE TOLERANCE, PILE DEFLECTION     = 1.00000E-05 m
    ITERATION LIMIT, FOUNDATION                =      100
    ITERATION LIMIT, SINGLE PILE               =      100
    INITIAL LOAD STEP FACTOR                   =     1.0000
    MINIMUM LOAD STEP FACTOR                   =     1.0000
```

OUTPUT: PILE CAP AND PILE HEADS

--- PILE LAYOUT ---

ID	Label	X	Y	Z Head	Z Tip	Length	Batter from Vert	Batter Ratio 1:m	Azimuth
		m	m	m	m	m	°		°
P1	P1	-1.8000	-1.8000	0.0000	-24.000	24.000	0.0000		0.0000
P2	P2	0.0000	-1.8000	0.0000	-24.000	24.000	0.0000		0.0000
P3	P3	1.8000	-1.8000	0.0000	-24.000	24.000	0.0000		0.0000
P4	P4	-1.8000	0.0000	0.0000	-24.000	24.000	0.0000		0.0000
P5	P5	0.0000	0.0000	0.0000	-24.000	24.000	0.0000		0.0000
P6	P6	1.8000	0.0000	0.0000	-24.000	24.000	0.0000		0.0000
P7	P7	-1.8000	1.8000	0.0000	-24.000	24.000	0.0000		0.0000
P8	P8	0.0000	1.8000	0.0000	-24.000	24.000	0.0000		0.0000
P9	P9	1.8000	1.8000	0.0000	-24.000	24.000	0.0000		0.0000

Pile	Section	Pile Type	Head Condition	p-y Set	L-D Curve	T-R Curve	Axial Reduction	Lateral Reduction Set
P1	Pile 1	Driven pile	Project (Fixed)				1.0000	
P2	Pile 1	Driven pile	Project (Fixed)				1.0000	
P3	Pile 1	Driven pile	Project (Fixed)				1.0000	
P4	Pile 1	Driven pile	Project (Fixed)				1.0000	
P5	Pile 1	Driven pile	Project (Fixed)				1.0000	
P6	Pile 1	Driven pile	Project (Fixed)				1.0000	
P7	Pile 1	Driven pile	Project (Fixed)				1.0000	
P8	Pile 1	Driven pile	Project (Fixed)				1.0000	
P9	Pile 1	Driven pile	Project (Fixed)				1.0000	

Pile	Segments	Ground Elev Override	Local Axis Rotation
		m	°
P1	100		0.0000
P2	100		0.0000
P3	100		0.0000
P4	100		0.0000
P5	100		0.0000
P6	100		0.0000
P7	100		0.0000
P8	100		0.0000
P9	100		0.0000

[PILE HEAD CONNECTION]

PILES	CONNECTION	K Z-Z (KR3)	K Y-Y (KR2)
		kN·m	kN·m
Project (all other piles)	Fixed		

--- MATERIALS AND PILE SECTIONS ---

[MATERIALS]

Name	Type	Weight/Volume	E	nu	fc	fy	fu	Es
		kN/m³	kN/m²		kN/m²	kN/m²	kN/m²	kN/m²
fc' 30 MPa	Concrete	24.000	2.5743E+07	0.20000	30000			

[PILE SECTIONS]

Name	Shape	Behaviour	Material	A	I22	I33	J
				m²	m⁴	m⁴	m⁴
Pile 1	Elastic section (user-defined EI)	Elastic (no yield)	fc' 30 MPa	0.28274	0.0063617	0.0063617	0.012723

Name	Perimeter	p-y Width
	m	m
Pile 1	1.8850	0.60000

--- SOIL PROFILE ---

Profile	Top Elev	Bottom Elev	Layer	k Override	Ground Elev	Water Elev	Scour
	m	m		kN/m³	m	m	m
Profile 1	0.0000	-8.0000	Soft clay		0.0000	-1.0000	0.0000
Profile 1	-8.0000	-20.000	Stiff clay		0.0000	-1.0000	0.0000
Profile 1	-20.000	-40.000	Dense sand		0.0000	-1.0000	0.0000

LAYER	p-y MODEL	GAMMA UNSAT	GAMMA SAT	SIDE FRICTION	TIP RESISTANCE
		kN/m³	kN/m³	kN/m²	kN/m²
Soft clay	Soft Clay (Matlock)	15.000	16.000	0.0000	0.0000
Stiff clay	Stiff Clay without Free Water	17.500	19.000	0.0000	0.0000
Medium sand	Sand (Reese)	17.000	19.500	0.0000	0.0000
Dense sand	API Sand (O'Neill)	18.000	20.500	0.0000	0.0000

[LAYER Soft clay]

cu	= 25.000 kN/m²
ε50	= 0.020000

[LAYER Stiff clay]

cu	= 120.00 kN/m²
ε50	= 0.0050000

[LAYER Medium sand]

ϕ'	= 33.000 °
k	= 24400 kN/m³

[LAYER Dense sand]

ϕ'	= 38.000 °
k	= 61000 kN/m³

Side friction and tip resistance 0 = estimated by the program from the soil data.

--- AXIAL LOAD-SETTLEMENT CURVES ---

GENERATED FROM THE SOIL PROFILE FOR EVERY PILE

```
--- TORQUE-TWIST CURVES ---

GENERATED FROM THE SOIL PROFILE FOR EVERY PILE


--- MOMENT-CURVATURE DATA ---

ALL PILE SECTIONS ARE ELASTIC


--- MULTIPLIERS AND REDUCTION FACTORS ---

P-/Y-MULTIPLIERS OF THE MODEL      : NONE
AXIAL LOAD REDUCTION FACTORS       : NOT APPLIED (OPTION OFF)
LATERAL REDUCTION ALONG DEPTH      : NOT APPLIED (OPTION OFF)

NO CLOSE-SPACING REDUCTION FACTORS ARE APPLIED
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12. Appendix — Output Results

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               Solgroup 1.0.9

               Pile group analysis in 3D
               with nonlinear soil-pile interaction

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Model                 : Example 1
Report                : Output Results
Units                 : kN, m, C
Report date           : 2026-11-15 16:46:33


==== ANALYSIS RESULTS ====


Example 1


==== RESULTS BY LOAD CASE ====



CASE      : DEAD
CASE TYPE : Nonlinear Static
STATUS    : ANALYSIS COMPLETED (7 ITERATIONS)


--- PILE CAP RESPONSE ---


[ EQUIVALENT CONCENTRATED LOAD AT REFERENCE POINT ]

  FORCE X  FORCE Y  FORCE Z  MOMENT X  MOMENT Y  MOMENT Z
       kN       kN       kN      kN·m      kN·m      kN·m
  -------  -------  -------  --------  --------  --------
   300.00   0.0000  -5907.8    0.0000    450.00    0.0000

[ DISPLACEMENT OF PILE CAP AT REFERENCE POINT ]

     DISP. X  DISP. Y     DISP. Z  ROT. X     ROT. Y  ROT. Z
           m        m           m       °          °       °
  ----------  -------  ----------  ------  ---------  ------
  9.3316E-04   0.0000  -0.0012934  0.0000  0.0051741  0.0000

     CAP ITERATIONS =    7


--- PILE RESPONSE ---


[ PILE P1 ]

[ HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z ]

     DISP. X  DISP. Y     DISP. Z  ROT. X     ROT. Y  ROT. Z
           m        m           m       °          °       °
  ----------  -------  ----------  ------  ---------  ------
  9.3316E-04   0.0000  -0.0011308  0.0000  0.0051741  0.0000

[ HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3 ]

    DISP. 1     DISP. 2  DISP. 3  ROT. 1  ROT. 2      ROT. 3
          m           m        m       °       °           °
  ---------  ----------  -------  ------  ------  ----------
  0.0011308  9.3316E-04   0.0000  0.0000  0.0000  -0.0051741

   AXIAL  SHEAR 2  SHEAR 3  TORSION  MOMENT 2  MOMENT 3  STRESS
      kN       kN       kN     kN·m      kN·m      kN·m   kN/m²
  ------  -------  -------  -------  --------  --------  ------
  577.07   33.350   0.0000   0.0000    0.0000    43.315  4083.6

[ PILE P2 ]

[ HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z ]

     DISP. X  DISP. Y     DISP. Z  ROT. X     ROT. Y  ROT. Z
           m        m           m       °          °       °
  ----------  -------  ----------  ------  ---------  ------
  9.3316E-04   0.0000  -0.0012934  0.0000  0.0051741  0.0000

[ HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3 ]

    DISP. 1     DISP. 2  DISP. 3  ROT. 1  ROT. 2      ROT. 3
          m           m        m       °       °           °
  ---------  ----------  -------  ------  ------  ----------
  0.0012934  9.3316E-04   0.0000  0.0000  0.0000  -0.0051741

   AXIAL  SHEAR 2  SHEAR 3  TORSION  MOMENT 2  MOMENT 3  STRESS
      kN       kN       kN     kN·m      kN·m      kN·m   kN/m²
  ------  -------  -------  -------  --------  --------  ------
```

659.62	33.333	0.0000	0.0000	0.0000	43.317	4375.6

[PILE P3]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
9.3316E-04	0.0000	-0.0014559	0.0000	0.0051741	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1	DISP. 2	DISP. 3	ROT. 1	ROT. 2	ROT. 3
m	m	m	°	°	°
0.0014559	9.3316E-04	0.0000	0.0000	0.0000	-0.0051741

AXIAL	SHEAR 2	SHEAR 3	TORSION	MOMENT 2	MOMENT 3	STRESS
kN	kN	kN	kN·m	kN·m	kN·m	kN/m²
732.60	33.317	0.0000	0.0000	0.0000	43.319	4633.8

[PILE P4]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
9.3316E-04	0.0000	-0.0011308	0.0000	0.0051741	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1	DISP. 2	DISP. 3	ROT. 1	ROT. 2	ROT. 3
m	m	m	°	°	°
0.0011308	9.3316E-04	0.0000	0.0000	0.0000	-0.0051741

AXIAL	SHEAR 2	SHEAR 3	TORSION	MOMENT 2	MOMENT 3	STRESS
kN	kN	kN	kN·m	kN·m	kN·m	kN/m²
577.07	33.350	0.0000	0.0000	0.0000	43.315	4083.6

[PILE P5]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
9.3316E-04	0.0000	-0.0012934	0.0000	0.0051741	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1	DISP. 2	DISP. 3	ROT. 1	ROT. 2	ROT. 3
m	m	m	°	°	°
0.0012934	9.3316E-04	0.0000	0.0000	0.0000	-0.0051741

AXIAL	SHEAR 2	SHEAR 3	TORSION	MOMENT 2	MOMENT 3	STRESS
kN	kN	kN	kN·m	kN·m	kN·m	kN/m²
659.62	33.333	0.0000	0.0000	0.0000	43.317	4375.6

[PILE P6]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
9.3316E-04	0.0000	-0.0014559	0.0000	0.0051741	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1	DISP. 2	DISP. 3	ROT. 1	ROT. 2	ROT. 3
m	m	m	°	°	°
0.0014559	9.3316E-04	0.0000	0.0000	0.0000	-0.0051741

AXIAL	SHEAR 2	SHEAR 3	TORSION	MOMENT 2	MOMENT 3	STRESS
kN	kN	kN	kN·m	kN·m	kN·m	kN/m²
732.60	33.317	0.0000	0.0000	0.0000	43.319	4633.8

[PILE P7]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
9.3316E-04	0.0000	-0.0011308	0.0000	0.0051741	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1	DISP. 2	DISP. 3	ROT. 1	ROT. 2	ROT. 3
m	m	m	°	°	°
0.0011308	9.3316E-04	0.0000	0.0000	0.0000	-0.0051741

AXIAL	SHEAR 2	SHEAR 3	TORSION	MOMENT 2	MOMENT 3	STRESS
kN	kN	kN	kN·m	kN·m	kN·m	kN/m²
577.07	33.350	0.0000	0.0000	0.0000	43.315	4083.6

[PILE P8]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
9.3316E-04	0.0000	-0.0012934	0.0000	0.0051741	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1	DISP. 2	DISP. 3	ROT. 1	ROT. 2	ROT. 3
m	m	m	°	°	°
0.0012934	9.3316E-04	0.0000	0.0000	0.0000	-0.0051741

AXIAL	SHEAR 2	SHEAR 3	TORSION	MOMENT 2	MOMENT 3	STRESS
kN	kN	kN	kN·m	kN·m	kN·m	kN/m²
659.62	33.333	0.0000	0.0000	0.0000	43.317	4375.6

[PILE P9]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
9.3316E-04	0.0000	-0.0014559	0.0000	0.0051741	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1	DISP. 2	DISP. 3	ROT. 1	ROT. 2	ROT. 3
m	m	m	°	°	°
0.0014559	9.3316E-04	0.0000	0.0000	0.0000	-0.0051741

AXIAL	SHEAR 2	SHEAR 3	TORSION	MOMENT 2	MOMENT 3	STRESS
kN	kN	kN	kN·m	kN·m	kN·m	kN/m²
732.60	33.317	0.0000	0.0000	0.0000	43.319	4633.8

[RUN NOTES]

- Self weight of the cap: 507.8 kN (multiplier 1); the weight of the piles is not included.

CASE : LIVE
CASE TYPE : Nonlinear Static
STATUS : ANALYSIS COMPLETED (2 ITERATIONS)

--- PILE CAP RESPONSE ---

[EQUIVALENT CONCENTRATED LOAD AT REFERENCE POINT]

FORCE X	FORCE Y	FORCE Z	MOMENT X	MOMENT Y	MOMENT Z
kN	kN	kN	kN·m	kN·m	kN·m
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[DISPLACEMENT OF PILE CAP AT REFERENCE POINT]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

CAP ITERATIONS = 2

--- PILE RESPONSE ---

[PILE P1]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1	DISP. 2	DISP. 3	ROT. 1	ROT. 2	ROT. 3
m	m	m	°	°	°
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AXIAL	SHEAR 2	SHEAR 3	TORSION	MOMENT 2	MOMENT 3	STRESS
kN	kN	kN	kN·m	kN·m	kN·m	kN/m²
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[PILE P2]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1	DISP. 2	DISP. 3	ROT. 1	ROT. 2	ROT. 3
m	m	m	°	°	°
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AXIAL	SHEAR 2	SHEAR 3	TORSION	MOMENT 2	MOMENT 3	STRESS
kN	kN	kN	kN·m	kN·m	kN·m	kN/m²
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[PILE P3]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1	DISP. 2	DISP. 3	ROT. 1	ROT. 2	ROT. 3

m	m	m	°	°	°
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AXIAL kN	SHEAR 2 kN	SHEAR 3 kN	TORSION kN·m	MOMENT 2 kN·m	MOMENT 3 kN·m	STRESS kN/m²
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[PILE P4]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X m	DISP. Y m	DISP. Z m	ROT. X °	ROT. Y °	ROT. Z °
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1 m	DISP. 2 m	DISP. 3 m	ROT. 1 °	ROT. 2 °	ROT. 3 °
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AXIAL kN	SHEAR 2 kN	SHEAR 3 kN	TORSION kN·m	MOMENT 2 kN·m	MOMENT 3 kN·m	STRESS kN/m²
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[PILE P5]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X m	DISP. Y m	DISP. Z m	ROT. X °	ROT. Y °	ROT. Z °
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1 m	DISP. 2 m	DISP. 3 m	ROT. 1 °	ROT. 2 °	ROT. 3 °
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AXIAL kN	SHEAR 2 kN	SHEAR 3 kN	TORSION kN·m	MOMENT 2 kN·m	MOMENT 3 kN·m	STRESS kN/m²
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[PILE P6]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X m	DISP. Y m	DISP. Z m	ROT. X °	ROT. Y °	ROT. Z °
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1 m	DISP. 2 m	DISP. 3 m	ROT. 1 °	ROT. 2 °	ROT. 3 °
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AXIAL kN	SHEAR 2 kN	SHEAR 3 kN	TORSION kN·m	MOMENT 2 kN·m	MOMENT 3 kN·m	STRESS kN/m²
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[PILE P7]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X m	DISP. Y m	DISP. Z m	ROT. X °	ROT. Y °	ROT. Z °
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1 m	DISP. 2 m	DISP. 3 m	ROT. 1 °	ROT. 2 °	ROT. 3 °
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AXIAL kN	SHEAR 2 kN	SHEAR 3 kN	TORSION kN·m	MOMENT 2 kN·m	MOMENT 3 kN·m	STRESS kN/m²
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[PILE P8]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X m	DISP. Y m	DISP. Z m	ROT. X °	ROT. Y °	ROT. Z °
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1 m	DISP. 2 m	DISP. 3 m	ROT. 1 °	ROT. 2 °	ROT. 3 °
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AXIAL kN	SHEAR 2 kN	SHEAR 3 kN	TORSION kN·m	MOMENT 2 kN·m	MOMENT 3 kN·m	STRESS kN/m²
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[PILE P9]

[HEAD DISPLACEMENTS IN GLOBAL AXES X-Y-Z]

DISP. X	DISP. Y	DISP. Z	ROT. X	ROT. Y	ROT. Z
m	m	m	°	°	°
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

[HEAD DISPLACEMENTS AND FORCES IN PILE AXES 1-2-3]

DISP. 1	DISP. 2	DISP. 3	ROT. 1	ROT. 2	ROT. 3
m	m	m	°	°	°
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

AXIAL	SHEAR 2	SHEAR 3	TORSION	MOMENT 2	MOMENT 3	STRESS
kN	kN	kN	kN·m	kN·m	kN·m	kN/m²
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000